

Air, Water and Ecosystem Quality Monitoring and Forecasting: Combining Forces for Better Results

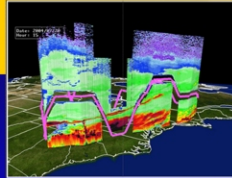
EPA Office of Research and Development's Advanced Monitoring Initiative (AMI) and Global Earth Observation System of Systems (GEOSS): Working to Provide Information to Improve Decisions for Protecting Our Health, the Air, Water, and Land

Issue: GEOSS reflects a global scientific and political consensus that assessing the Earth's atmospheric conditions requires continuous and coordinated observation. GEOSS enables observers to monitor changing conditions and determine the effectiveness of environmental methods.

Response: The Office of Research and Development (ORD) is assisting with these observations by monitoring air, water, and ecosystems through the Advanced Monitoring Initiative (AMI).

Outcome: This poster highlights efforts that help us use innovative means to understand the factors affecting human health and the environment, make better decisions and determine more quickly whether policy changes are improving the environment.

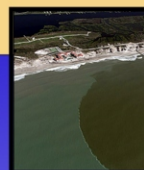
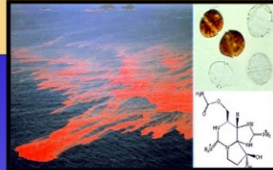
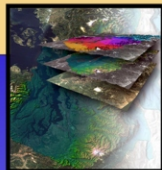
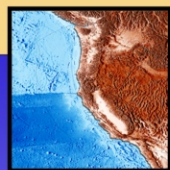
Remote Sensing Information Gateway (RSIG): Goal: Create an information storage and retrieval system combining satellite data and imagery, meteorological data, and atmospheric modeling output with a web-based Graphical User Interface (GUI). RSIG subsets data at its source, allowing users to easily retrieve combined datasets in minutes, rather than hours or days. Several of the projects on this poster will use and benefit from the RSIG. Authors: Val Garcia, National Oceanic and Atmospheric Administration (NOAA), Gary Walter, NOAA



Pacific Coast Ecosystem Information System (PCEIS): From Description to Prediction Goal: Enhance PCEIS, a georeferenced database of the native and nonindigenous marine/estuarine species and coastal landscape characteristics for the Pacific Coast. Authors: Henry Lee II, ORD; Deborah Reusser, USGS/Western Geographic Science Center

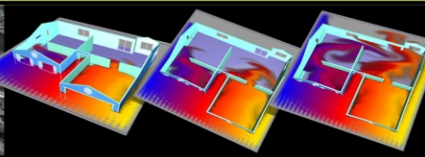
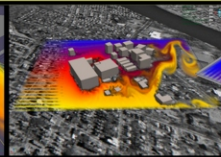
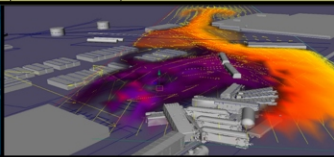
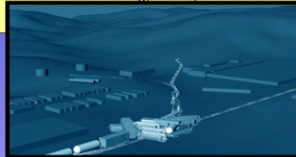
An Integrated Water Quality Monitoring and Algal Bloom Advisory and Decision Support System for Coastal and Estuarine Systems: Goal: Provide near real-time capability to identify, delineate and determine the extent, magnitude and duration of chlorophyll-a concentrations that exceed allowable limits and threaten water quality. This data is critical as an early warning tool for issuing Harmful Algal Bloom (HAB) advisories. The project supports N.C. efforts to understand relationships between HAB events, human exposure and potential health effects. Authors: Ross Lunetta, ORD; Hans Paerl, University of North Carolina-Chapel Hill Institute of Marine Sciences

Bi-National Expansion of the Harmful Algal Blooms Observing System (HABOS): Goal: Expand HABOS to support the Gulf-wide, bi-national partnership. This project's chief aims: developing regional data management and communications systems; providing timely access to data and information for detecting, tracking and forecasting HAB events and their effects on public health and natural resources. Authors: William Fisher, ORD; Melanie Magee, EPA/Gulf of Mexico Program Office



Morphological Database and Web Portal Access for Advanced Urban Atmospheric and Dispersion Modeling (UADM): Goal: Build a prototype database, with a web portal interface, for at least two cities, with system capability extensible to other cities. Users can access urban building data, ancillary data and examples of environmental and exposure assessment applications. Also, urban canopy parameterization daughter products will be accessible for meteorology models to drive urban air quality and dispersion modeling. Authors: Jason Ching, NOAA, on detail to ORD; David J Williams, ORD

AIRNow Gateway System: Goal: Produce an off-site real-time broadcast feed for providing and delivering AIRNow data to the scientific, research and educational communities to improve forecasting and protect public health. Authors: Phil Dickerson, Office of Air and Radiation, John White, EPA/ Office of Air and Radiation



Delivering Air Quality estimates for Public Health Air Surveillance Evaluations (PHASE) – Goal: Implementing the PHASE toolkit. The Centers for Disease Control and Prevention (CDC) is working with the EPA, state, academic, and other partners to develop an Environmental Public Health Tracking (EPHT) Network. EPA is exploring how to generate routinely available air quality information and indicators that can be used to help measure the success of its programs in terms of public health outcomes. The EPHT Program is a possible mechanism for relating health surveillance data to environmental exposures. Authors: Fred Dimmick, ORD; Janet Burke, ORD; James Hemby, Office of Air and Radiation

Modeling Fused Spatial Data for Improved Public Information on Air Quality: Goal: Provide state-of-the-science continuous predictive maps of current day and next day air quality patterns (forecasts) in the U.S. This project builds upon recent advances in the modeling of fused spatial information. Authors: David Holland, ORD; Jim Szykman, ORD



Clean Air Interstate Rule (CAIR) accountability Assessment: Goal: Develop an Integrated Model-Measurement Approach to Assess Synoptic-Scale Transport of Sulfate Aerosols. This project demonstrates how an integrated 3-D monitoring network can be used with NASA trajectory models and advanced statistical analysis to enhance the understanding of air quality transport and assist in regulatory "air transport related accountability metrics." Authors: Fred Dimmick, ORD; Rich Scheffe, Office of Air and Radiation



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